



Superfund At Work

Hazardous Waste Cleanup Efforts Nationwide

Eastern Diversified Metals Site Profile

Site Description:

Former metals reclamation facility
in Rush Township, Schuylkill
County, PA

Site Size: 25 acres

Primary Contaminants:

Heavy metals including lead,
polychlorinated naphthalenes (PCNs),
polychlorinated biphenols (PCBs),
and dioxin

Potential Range of Health Risks:

Direct contact increases risk of
cancer, kidney and liver damage

Nearby Population Affected:

1,600 people within one mile

Ecological Concerns:

The Mauch Chunk Formation

Year Listed on NPL: 1989

EPA Region: 3

State: Pennsylvania

Congressional District: 6

Success in Brief

EPA Pioneers Cleanup Strategy: Recycling Hazardous Waste

The U.S. Environmental Protection Agency (EPA) selected on-site waste recycling as the primary cleanup strategy for the Eastern Diversified Metals site. This is the first time the Superfund program has selected recycling at a hazardous waste site. More than 350 million pounds of plastic insulation waste formed an enormous mountain on the property. Because of the large volume of that single type of waste, recycling was a cost-effective alternative to landfilling and incineration. The plan demonstrated EPA's ability to resolve a complex situation with a simple yet creative solution. By working with Pennsylvania state officials, members of the community, and waste contributors, Superfund staff:

- Designed an effective cleanup that will be privately financed and conducted; and
- Demonstrated how recycled hazardous waste can be converted into a marketable product whose sale will help finance the cost of cleanup.

EPA increasingly seeks new technologies for hazardous waste cleanup to save resources, to provide flexibility to potentially responsible parties, and to encourage innovation in the marketplace.

The Site Today

Following a September 1991 order, the site owner and waste contributors removed and disposed of on-site miscellaneous debris, initiated ground water studies, and improved the existing fence around the site.

In July 1992, EPA selected recycling to clean up the plastic insulation waste. Because the responsible parties failed to reach a negotiated settlement, EPA issued a unilateral order in June **1993**, directing them to perform and finance the recycling remedy.



More than **350 million pounds** of plastic insulation waste formed an enormous mountain on the property.

A Site Snapshot

Eastern Diversified Metals is a former wire reclamation facility located in Rush Township, Schuylkill County, Pennsylvania. The 25-acre site is bordered by a home and several businesses, as well as state game lands. A tributary of the Little Schuylkill River flows adjacent to the site.

Beginning in 1966, the facility reclaimed copper and aluminum by stripping plastic and fiber insulation from electrical wires and cables. Discarded insulation gradually encompassed 7.5 acres.

Investigations conducted by EPA and the state uncovered

heavy metals including copper, lead, manganese, and zinc in the soil. In addition, some dioxin,

The waste materials formed a 7.5-acre mountain

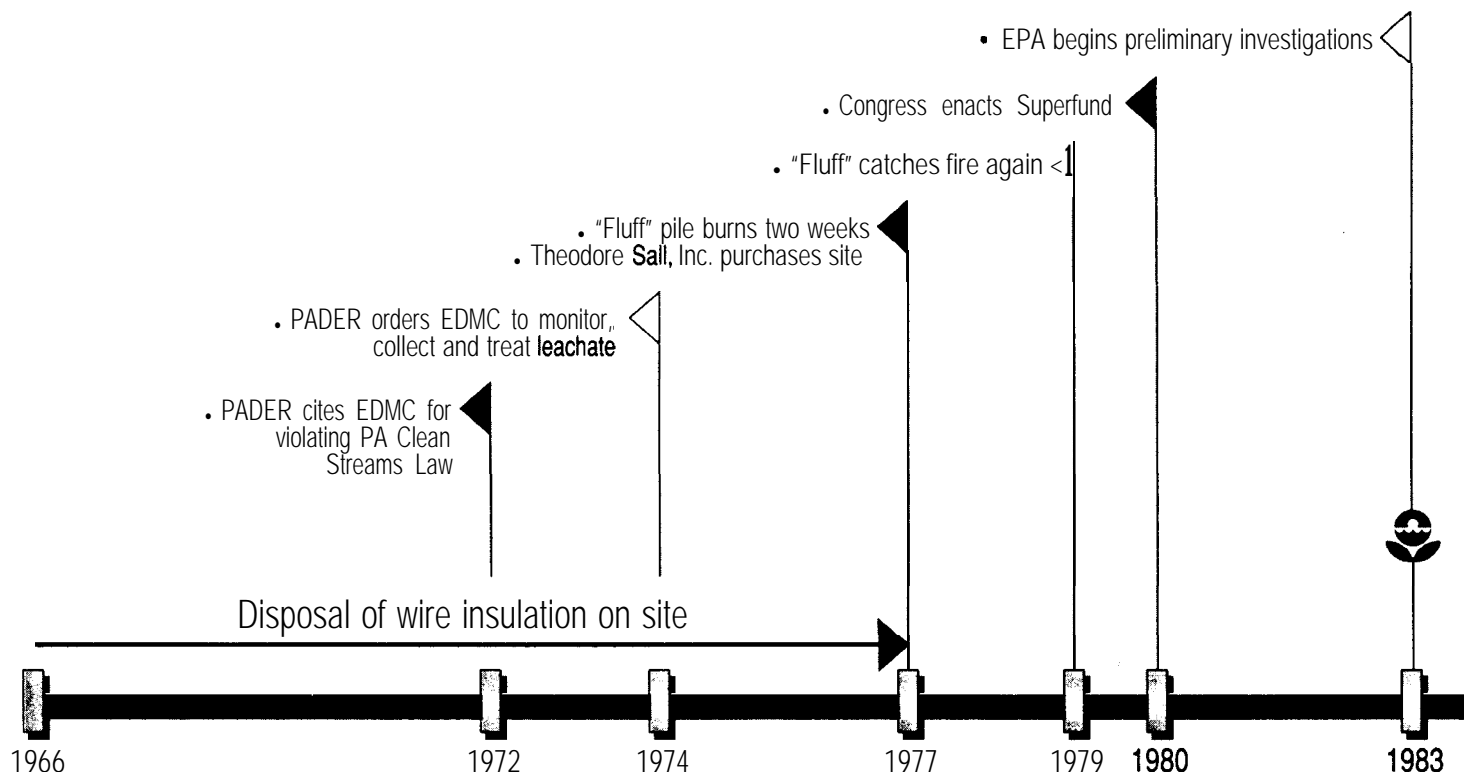
polychlorinated naphthalenes (PCNs), and polychlorinated biphenols (PCBs) have been found at dangerous levels.

Approximately 1,600 people live within a one-mile radius of the site. The Mauch Chunk Formation, one of the largest aquifers in Northeastern Pennsylvania, underlies the site as well as

surrounding communities.

More than 1,400 local residents draw from wells that are within three miles of the site and are connected to the Mauch Chunk Formation. Volatile organic compounds (VOCs) have been detected in area ground water, including on-site and off-site monitoring wells, but may not be site related.

Direct exposure to contaminated ground water, soil, or surface wastes could result in harmful health effects such as liver or kidney damage or could increase the risk of certain types of cancer.



EPA and State Supervise Cleanup of Site

Wire Reclamation Contaminates Site

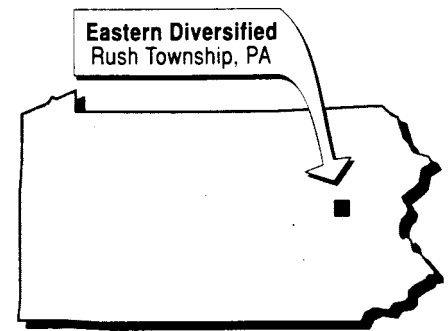
Between 1966 and 1977, Eastern Diversified Metals Corporation (EDMC) reclaimed copper and aluminum from wire and communication cable. Plastic insulation was mechanically stripped from the wires and

EDMC reclaimed copper and aluminum from wire and communication cable

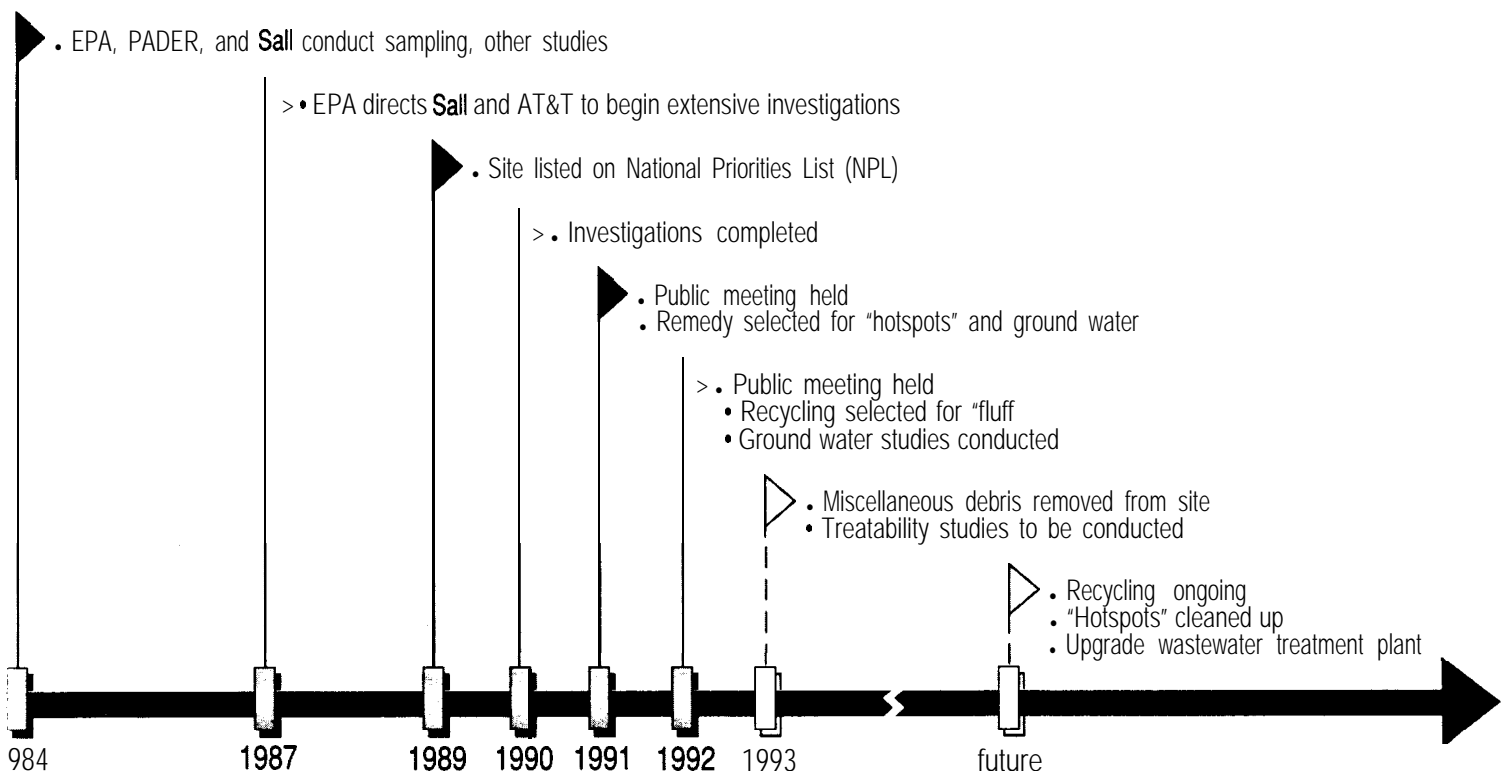
disposed of behind the processing building. Eventually the waste material, referred to as "fluff," formed a 40- to 60-foot mountain

encompassing 7.5 acres and weighing more than 350 million pounds. Other debris, including unstripped wire and cable, cable spools, scrap metal, and wooden pallets were dumped in several small piles around the site.

Prior to EDMC's use of the property, no waste disposal took place at the site. Within a year of purchase, however, residents began to complain about odors and runoff originating at the site. In the early 1970s, the Pennsylvania Department of Environmental Resources (PADER) inspected the site in response to these complaints and cited EDMC with failure to compact and cover the waste.



In 1972, EDMC was cited for violating Pennsylvania's Clean Streams Law. Under the direction of PADER, the company installed a wastewater treatment plant, surface and ground water diversion ditches, and ground water interceptors in 1974. This system was designed to monitor, collect, and treat leachate originating from the "fluff." Leachate is contaminated runoff caused by rain draining through the "fluff," carrying hazardous chemical residue into soil and ground water.



Reclamation operations at the site ceased in 1977 and the site was sold to Theodore Sall, Inc. (Sall), a subsidiary of Diversified Industries, the parent company of EDMC.

A fire ignited in the "fluff" in 1977 and burned for almost two weeks. Fighting the fire proved

The "fluff" burned for almost two weeks

very difficult because the flames burned underneath the surface. In 1979, another fire erupted; in response, Sall excavated the scorched areas of the pile, installed heat sensors, and developed a fire contingency plan. But Sall did not erect a fence to restrict access to the site until 1987 when EPA ordered the company to do so.

EPA Negotiates Cleanup at Eastern Diversified Metals

Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) establishing the Superfund program to address thousands of hazardous waste sites nationwide. CERCLA empowered EPA to compel those responsible for contaminating sites to undertake prescribed cleanup actions.

EPA first became involved at Eastern Diversified Metals in 1983 after preliminary inspections revealed dangerous contaminants on the site. Subsequent investiga-

tions completed by EPA, PADER, and Sall between 1984 and 1987 indicated that the site should be placed on the National Priorities List (NPL), EPA's roster of hazardous waste sites requiring comprehensive cleanup under the Superfund program. In 1989, the site was formally added to the NPL.

In October 1987, EPA signed an agreement with Sall and AT&T Nassau Metals Corporation (AT&T), the major contributor of the waste, to conduct comprehensive studies to determine the nature and extent of contamination. These studies were completed in 1990.

EPA Selects Cleanup Alternatives

To streamline operations, EPA divided the site into three manageable units:

- "Hotspots" in the "fluff" where dioxin and PCB / PCN levels were high, and other debris, soil and sediments contaminated with high concentrations of heavy metals;
- Shallow ground water and leachate;
- The bulk of the waste including plastic insulation contaminated with lead.

EPA proposed several options for each unit and held a public meeting in February 1991 to inform local residents about the upcoming work at the site. Following a public comment period, EPA announced the preferred

remedy for the "hot spots." EPA selected incineration, but further examination of the wastes by EPA laboratories revealed a different composition than originally determined. EPA is still in the process of evaluating the incineration remedy.

To clean up ground water, EPA

Recycling was chosen to clean up the waste

selected an interim plan requiring shallow ground water studies, improved water runoff controls, and further analysis of the site's effect on the Mauch Chunk Formation, if any. EPA will choose a final remedy for ground water this October.

In September 1991, EPA ordered Sall and AT&T to remove miscellaneous debris from the site, repair a security fence, and undertake additional ground water studies. In July 1992, following another public comment period, EPA issued the waste recycling remedy for the "fluff." Under the plan, this material will be recycled on site. All non-recyclable materials and contaminated soil will be taken to off-site landfills.

EPA and the state supervised removal activities until January, 1993. Cleanup actions to remove the extraneous debris piles were completed in the summer of 1993.



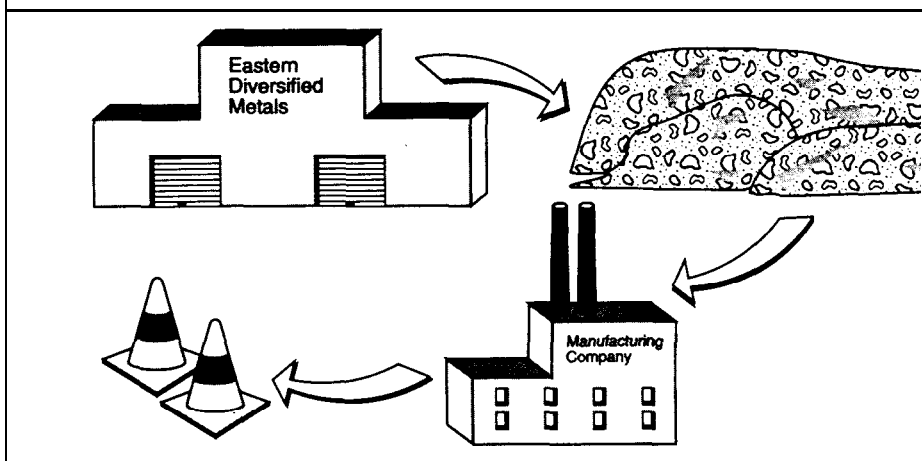
Recycling the Reclaimer's Waste

For the first time at a Superfund site, EPA selected recycling as the cleanup method. This technique was chosen for Eastern Diversified Metals because there was a large volume of one type of waste at the site. Recycling was an appealing alternative to traditional technologies because the "disposal" method created a marketable product. The contaminants would be efficiently removed and some cleanup costs could potentially be recouped through the sale of the recycled waste.

Two principal recycling methods may be used at Eastern Diversified Metals to remove between 60 and 95 percent of the waste volume in the "fluff." One method, called "bulk processing" converts the "fluff" without alteration directly into a solid plastic mass. The process uses pressure, heat, and chemical additives to fuse the "fluff" together, reducing the risk of exposure to contaminants. The material can then be used to fabricate tiles, mats, fenders, cushions, plastic lumber, traffic cones, and highway barriers. The bulk process has proven to be very successful in several European countries.

Paper, fiber and metal also can be recycled from the pile, reducing even more waste. Plastics are separated from the soil and other debris through a "sink-float" process using water (heavy objects sink and

Plastic waste materials from Eastern Diversified Metals can be recycled to manufacture new **products** such as tiles, cushions and traffic cones.



lighter ones float to the surface). This process can be used to separate the polyethylene (PE) and polyvinyl chloride (PVC) plastics. The PE and PVC plastics are then formed into pellets that can be used as raw materials in the manufacture of new plastics or as ingredients in concrete or blacktop. Any contaminants are encapsulated in the plastic.

Recycling will remove between 60 and 95% of the waste volume

Recycling and off-site disposal are less costly than traditional cleanup methods and can be offset by the sale of the recycled product. Less restrictions exist on the use of the property in the future. By comparison, traditional on-site landfilling methods could cost many times more and sometimes leave the land with very limited future use.

The key to the success of a waste recycling plan is the devel-

opment of markets for the recycled product. Both EPA and the U.S. Department of Commerce have encouraged the development of new end-uses for materials.

Recycling could be used at other sites and industry sources have applauded EPA's effort to employ this cost-effective technique. The EPA Remedial Project Manager, Steve Donohue, stated that not only is recycling efficient, but "the right thing to do for the environment."

Following lengthy negotiations, Saul and AT&T were unable to reach a negotiated settlement to conduct the recycling portion of the cleanup. The Saul corporation then filed for bankruptcy. In June 1993, EPA ordered AT&T to start work; the company will perform treatability studies this fall to decide which of the two processes are preferable. EPA will supervise their efforts with assistance from state officials.

Public Participation is Vital to the Superfund Program

During a hazardous waste cleanup, clear communication between EPA and the community is essential. At Eastern Diversified Metals, Superfund community relations staff opened up information repositories at convenient locations, held public hearings, distributed numerous fact sheets, and issued press releases to share information about the cleanup.

When EPA held public meetings to discuss alternative cleanup methods, residents from the surrounding community brought their questions and concerns to the table.

Residents had lodged complaints about the site with local officials long before EPA's involvement. Citizen groups had formed to protect local streams and

wildlife and to control emissions from polluting industries.

At this meeting, community activists raised the issue of public safety for both the recycling and incineration proposals. EPA staff reported that industrial hygienists at Rutgers University had conducted tests and found that no contaminants were released during the recycling process. In addition, pollution control devices would be installed and emissions closely monitored in the event incineration is used for the dioxin, PCB/ PCN "hotspots."

The community submitted public comments approving the cleanup alternatives, and will be asked to participate again when the ground water treatment method is selected.

Success at Eastern Diversified Metals

For the first time at a Superfund site, waste recycling was chosen as the primary cleanup strategy. This remedy will effectively clean up the site, converting hazardous waste into a marketable product for resale. In June 1993, waste contributors were ordered to begin work after negotiations failed. Treatability studies are scheduled for this fall to determine the best method of recycling.

A ground water treatment method will be selected this winter. Dioxin PCB / PCN "hotspots" are under evaluation at this time.

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